tatingly drawn in it is all too meagrely supported, and, although to be looked for in a series of lectures like the present, seems an intrusion in the context where it is found. The author apparently feels this, for he hastens on at once to other and I was about to say less controversial matters, but the assumption that his interpretation of history is the interpretation of Jesus would probably be as widely controverted.

The following passage summarizes the positions of the book and reveals the author's attitude and point of view with admirable clearness.

> To give justice rather than to insist upon rights, to rely upon inner rather than outward moral control, to have every element of life expressive of the same spirit of love that God himself exhibits, and to regard love as not a desire to gain popular approval or even to get friends, but as a sacrificial determination to do to others as one would like to have others do to oneself—all this can be found as truly in any catholic reading of the facts of human history as in the words of Jesus. As has been repeatedly said, social evolution, conditioned as it is by the impersonal and economic world, is yet superior to that world. It is a spiritual movement which, if it be prolonged, will bring the world under the sway of the ideals of Jesus himself.

An Introduction to the History of Science. By WALTER LIBBY, M.A., Ph.D., Professor of the History of Science in the Carnegie Institute of Technology. (Boston: Houghton Mifflin Company. 1917. Pp. x, 288. $1.50.)

THERE has been considerable agitation of late for instruction in the history of science in our colleges and technical schools. This volume is a practical step in that direction.

The author has written a little book on a big subject in excellent English. Professor Libby's statement (p. 134), "Dr. Hutton presented his Theory of the Earth in ninety-six pages of perfectly lucid English", might well be applied to his own book, if we change the number of pages to 288. The style is condensed, but a pleasure to read.

How to approach the subject, how to organize the material, and how to present it to the reader, are problems which many of the longer histories of science have failed to solve satisfactorily. Professor Libby adheres roughly to chronological order, but his chapter-headings are topical. He discusses science as a whole and in the broadest sense, and does not as a rule consider the individual sciences separately. On the other hand, certain leaders of scientific thought and accomplishment are singled out, and their lives, personalities, and genius are entertainingly set forth. Perhaps another would not have chosen for emphasis just the names that the author has selected. English-speaking scientists, for example, seem to receive rather more than their due ratio of attention. But the author makes it clear enough that "science is international", and tells its story in a broad, human, and tolerant manner. Its relations to other fields of man's life—education, war, religion, industry, travel, philosophy, art, ethics, and democracy—are well touched

upon, and the closing chapter deals chiefly with Matthew Arnold and Nietzsche.

The book is intended particularly for "youth of from seventeen to twenty-two years of age" and has "the mental capacity of a certain class of readers always in view". It surely will interest young people of that age, but it should also appeal to maturer readers. It contains many interesting facts that will be new to most persons, and also a number of passages that set one thinking. Many history teachers might broaden their view of the past by perusing this volume, and especially in courses in English history it should prove useful for collateral reading. In the main the author has avoided technical scientific terminology and blind allusions, but some passages assume an acquaintance with general history or with this or that particular natural science on the part of the reader.

A few specific criticisms should be made. The author follows the old and incorrect chronology for ancient Oriental history, dating Sargon of Akkad, for instance, over a thousand years too early, in 3800 B.C. As with other histories of science, the chapter on the Middle Ages is the weak point of the book. It is unfair to medieval anatomy to call Galen "the only experimental physiologist before the time of Harvey" (p. 38); unfair to the medieval popes and clergy to say that "the long and cruel war between science and Christian theology had begun" (p. 47); unfair to medieval artists and artisans to devote a chapter to Vitruvius and say never a word of Gothic architecture and the gilds of industrious and inventive freemen; unfair to medieval alchemists to affirm, "The writings that have been attributed to Geber show the advances that chemistry made through the experiments of the Arabs" (p. 51), since Berthelot has shown that these writings were really Latin works of the thirteenth and fourteenth centuries and superior to Arabian alchemy in scientific character. Did Gerbert attend "Arab" (p. 53) or Christian schools in Spain? The statement that Roger Bacon "transmitted in a treatise that fell under the eye of Columbus the view of Aristotle in reference to the proximity of another continent on the other side of the Atlantic" (p. 54), is misleading in more than one respect. The treatise which Columbus read was by Pierre d'Ailly, and Aristotle said nothing about a new continent, but that the distance by sea west from Spain to India was short—one argument for this being, according to Bacon, that the elephants of India and northwestern Africa are so similar that those two lands must be close enough together to receive the influence of the same constellations.

LYNN THORNDIKE.

Cotton as a World Power: a Study in the Economic Interpretation of History. By JAMES A. B. SCHERER, Ph.D., LL.D., President of Throop College of Technology. (New York: Frederick A. Stokes Company. 1917. Pp. 452. $2.00.)